

State of Texas



ADVANCE PLANNING DOCUMENT (APD)

HHSC Office of the Inspector General (OIG)

**Fraud, Waste, and Abuse Reduction Initiative:
Graph Pattern Analysis and Fraud Case Management Software**

Submitted to:

Centers for Medicare and Medicaid Services, Region VI

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Submitted by:

Texas Health and Human Services Commission

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Section 1 - Introduction

1.1 Purpose of the Advance Planning Document Update

The Texas Health and Human Services Commission (HHSC) submits this Advance Planning Document (APD) to request federal financial participation (FFP) from the Centers for Medicare and Medicaid Services (CMS) to implement a comprehensive fraud case management software toolset in support of its Fraud, Waste and Abuse reduction initiative.

This APD requests funding to modernize the entire OIG case processing system, using graph pattern analysis as the cornerstone of an investigative process based nearly exclusively on analytics. This investigative process complements the traditional reactive approach to complaint-based investigations with an active approach that identifies patterns of fraud and abuse before they become apparent. Although OIG will still accept and process investigations originating with complaints, OIG intends for the backbone of its case identification method to be graph pattern analysis.

HHSC submits this APD-U in accordance with 42 CFR Subpart C 433.112, 42 CFR Subpart C 433.117 and 45 CFR 95.605. These Federal regulations allow State agencies to request FFP for costs incurred for the operation of the MMIS to improve the efficiency and effectiveness of the service delivery of the Medicaid program. HHSC submits this APD to request prior approval to implement these changes. FFP for work at the enhanced 75/25 and 90/10 match rates are requested for this project.

1.2 Background of Texas MMIS

The Texas Medicaid program has operated since September 1967 under Title XIX of the Social Security Act, as amended. The program is funded by appropriations authorized by the Texas State Legislature for each biennium. The current biennium is September 1, 2011 through August 31, 2013. In the current biennium, state/federal funds for Medicaid are projected to comprise 32 percent of all-funds state expenditures (about \$172.3 billion).

HHSC is the single state agency responsible for the State of Texas Medicaid program and has final authority for Medicaid policies and changes made to the Medicaid Management Information System (MMIS). The MMIS is a distributed group of procedures and computer processing operations and subsystems. HHSC contracts with a coalition of vendors, headed by Affiliated Computer Systems State Health Care, LLC (ACS) and working under the name of the Texas Medicaid & Healthcare Partnership (TMHP) to provide MMIS services. The contract between HHSC and TMHP authorizes TMHP to provide the necessary services to process and adjudicate Medicaid claims (with the exception of capitated arrangements between health plans and HHSC and pharmacy claims). Compass21 is the name of the MMIS system used to support the processing and adjudicating of claims.

Texas Medicaid serves a total population of approximately 3.6 million eligible recipients per year and an average of 2.7 million in any given month. TMHP performs services to support the following claim and non-claim related areas of MMIS operations:

- Compass21
 - Clearinghouse (Compass21 Electronic Data Interchange (EDI) Gateway) – Provides Health Insurance Portability and Accountability Act (HIPAA)-compliant / EDI transaction routing
 - Recipient Subsystem – Supports recipient and eligibility management
 - Provider Subsystem – Supports provider enrollment and information management
 - Reference File Subsystem – Supports tables’ maintenance for edits and audits
 - Provider Portal – Web-based interface for Providers to access information and perform eligibility verification and claims’ status inquiry
 - Core Claims and Encounter Processing Subsystem – Supports editing, auditing and pricing of claims and encounters
 - Third Party Recovery System (TPR) – Support third party recovery and liability processing
 - Cash / Financial Subsystem – Support cash and financial processing
 - Vision21 (V21) AdHoc Query Platform (AHQP) – Datamart for information management and analysis of data related to Medicaid claims and associated data
 - Management and Administrative Reports Subsystem (MARS) – Supports defined MARs and Statistical reporting
 - Surveillance and Utilization Review Subsystem (SURS) – Supports SUR analysis and reporting
 - V21/Institutional Reimbursement (IR) - Supports specific reporting and analysis for IR-related extracts and reports, such as Blue Ribbon
 - Automated Inquiry System (AIS) – Supports phone inquiry of claims and eligibility related information for providers
 - Online interface (Phoenix) – Supports end-user functions for interaction with claims and related information
- Case Management / Health Education – Supports case management and health education functions for Primary Care Case Management (PCCM) members
- Vendor Drug Program (VDP) - The Vendor Drug system includes two subsystems: the Claims Payment System and the Pharmaceutical Rebate Information Management System.
- Provider Network Management – Supports provider network management, credentialing and enrollment for PCCM providers
- Member Management – Supports member processing for PCCM members
- Claims Submission (TexMedConnect) – Provider application that supports claims submission, eligibility verification and claims’ status inquiry
- Claims Management System and Service Authorization System – Long Term Care service authorization and claims processing engine
- Encounters Datamart – Stores managed care encounter data from contracted Managed Care Organizations.
- Vendor Drug system, which currently includes two subsystems: the Electronic Claims Management System, and the Pharmaceutical Rebate Information Management System.

In addition to the MMIS systems operated by TMHP, HHSC operates the Medical Fraud and Abuse Detection System (MFADS)

Section 2 - Needs and Objectives

2.1 Background

The greatest challenge to identifying and interdicting Medicaid fraud is discovery of the fraud itself. Fraud happens very quickly yet discovery can be slow, resulting in huge opportunities for criminals and huge costs for taxpayers. In FY 2010, Texas identified over \$71 million dollars in overpayments to health care providers as a result of fraud and abuse. In FY 2011, that figure had dropped to a mere \$28 million. Although identification of fraud and abuse in FY 2012 is significantly greater than in FY 2011, these overpayments – at any amount – clearly represent the tip of the iceberg when it comes to the costs of fraud and abuse in Medicaid. HHSC’s Fraud and Abuse initiative seeks to find the fraud beneath the surface that remains undetected and then actively manage its anti-fraud process through a fraud case management system.

Currently, the systems and processes within HHSC OIG are built around a complaint-based investigative process. The addition of active analytic tools to identify fraud as it happens represents a significant paradigm shift towards a more aggressive approach to recovering taxpayer money lost to Medicaid fraud and abuse. This approach will complement and reduce the reliance on the “pay and chase” and complaint-based investigative model of fraud management.

OIG has determined that a more appropriate response to the ever-changing schemes and artifices to defraud requires an adaptable, multi-pronged, overlapping approach that provides internal validation of discoveries while also permitting a rapid response to identify patterns, behaviors or schemes.

In support of this aggressive approach, HHSC conducted significant research in determining the best solutions to address undetected fraud, including but not limited to the following:

- Research on solutions with the Gartner group;
- Discussions with other states on their approaches to F&A identification;
- Research of federal agencies, including the Department of Defense and intelligence agencies;
- Internal discussions with Stakeholders and HHSC Leadership; and
- Extensive discussions with and participation in proofs of concept with commercial vendors.

HHSC identified two key needs in the active and aggressive identification, investigation and management of previously undetected and unreported fraud:

- The analysis of existing Medicaid claims data to identify trends through Automated Fraud Detection;
- Active management of identified fraud cases not developed around the traditional reactive complaint process.

More detail on these needs follows in section 2.2 “Business Needs” below

2.2 Business Needs

As discussed above, HHSC has identified two key business needs in support of its Fraud and Abuse reduction initiative.

2.2.1 Automated Fraud Detection

OIG has determined its capabilities are severely limited in detecting and prosecuting the investigation of fraud and abuse as it is happening. However, using graph pattern analysis we can see trends develop that we would not otherwise know to watch. Graph pattern analysis is a highly advanced form of analyzing data that graphically depicts the relationships between and among virtually any data point: entities, times, places, amounts, services, similarities, absence of similarities, differences – in short, anything that might represent a relationship of interest. For example, in Texas, orthodontia spending grew astronomically over approximately five years, an aberration that went completely unaddressed – *even though the fact of increased spending was both self-evident and discussed*. The reason in substantial part was that the Legislature had increased funding for the Medicaid dental program so everyone, from legislators to program managers to those charged with ensuring program integrity, *expected* spending to increase. In short, the State was able to determine *that* spending increased but was unable to perceive *how* it was increasing: the providers, locations and types of billing were warnings to state officials but there was no one who could see the greater picture and address the problem. Said another way, because spending increased uniformly across the orthodontic profession, there were no outliers to draw attention to an aberration. A rising tide lifts all boats and in this case the entire program was the aberration. Among other possibilities, graph pattern analysis would have identified the absence of outliers as a warning, would have identified the spending trend as an aberration compared to the funding provided in the General Appropriations Act and would have compared rates of growth in orthodontics to other areas, flagging the profession for further investigation.

Graph pattern analysis permits the user to compile and analyze huge quantities of data – from Medicaid encounter and billing data, to property ownership and Secretary of State records, to Dun & Bradstreet and commercially available databases, to Craig’s list and EBay – in seconds. In the analysis of that data lies the relationships that exist among and between entities, times, places, actions – or any other type of analysis the user wishes to examine. The primary advantage graph pattern analysis has over the existing targeted query analysis used in investigations is that the graph pattern analysis is undirected. It directs the data not toward targeted queries (“How many times does “X” billing code or event occur in conjunction with “Y” billing code or event) but toward unspecified analysis (“Show me what providers are doing similar things and the relationships that exist between them”). It is through this undirected analysis that HHSC OIG will greatly improve its investigation and fraud recovery ability. Using orthodontics as an example, graph pattern analysis could have identified that orthodontists in the Medicaid program were purchasing more objects – property, cars, planes and other items – at a rate disproportionate to their peers, other providers or indeed, themselves in previous years. In another example, OIG could identify connections between high frequency events, actors and locations (suggesting the presence of kickbacks or other incentives). In other words, where targeted queries ask data to reveal known unknowns, graph pattern analysis asks data to reveal unknown unknowns.

2.2.2 Case Management and Reporting

OIG does not have a fraud and abuse case management and reporting system to complement the automated fraud detection capabilities. In reality, the case management system OIG currently has does not permit OIG to query its caseload with any degree of automation. For example, it is impossible to generate an answer to the question, “how many cases did OIG open in the second quarter of FY 2012 and at what dollar amounts?” without manually opening every case and checking to see the date the case began and the dollars at risk. Similarly, there is no efficient way to monitor cases by individual investigator performance, case progress, case size, dollars at risk, amount of time a case has taken, or any other useful metric. Without a database and reporting system for fraud case information, OIG is unable to develop performance metrics to ensure quality fraud case management. Currently, the only useful metrics information OIG can obtain is via manually culling through case files or by opening each case individually in the existing case management system, identifying relevant data and tallying the results manually.

A case management system not only will allow parsing of active and historical caseloads to develop reports and analyze performance metrics. It will also permit investigators to upload reports, photographs and digital audio/visual recordings from the field, will incorporate report templates (drastically enhancing the quality of reports and decreasing the time necessary to prepare them) and will require time management and logging (to determine the amount of human and financial resources a particular case has required and provide a cost breakdown for recoupment purposes). Most significantly, a case management system will tie into graph pattern analytics so that OIG’s own reports will become a database: we will know how many times Dr. “X” appears in any OIG report (regardless of the context: witness, expert or target), will know where cases are trending and the types of cases, where MCO’s notice over- or underutilization, and so on. The proposed case management system will enable OIG to monitor case progress electronically, meaning managers will receive electronic notifications every time a case has been accessed, every time a deadline is missed, every time a report is uploaded. It will enable OIG to process cases more quickly and more efficiently, ensuring OIG investigators meet the agency target of case completion within eight weeks. Equally important, it will enable investigators to access their cases from the field, enabling OIG to transition to a more mobile, responsive approach.

Perhaps most significantly, OIG’s proposed case management system will integrate with two highly sophisticated analytics programs. In that manner the OIG case data itself will become a valuable data set, revealing trends (across geographic areas, population centers, medical specialties, provider type, billing code – any data point captured in an investigation) and making possible a rapid response to identified suspicious behavior that previously would not be identified at all, except by chance.

2.3 Solutions Procurement Process

After more than a year of evaluating various proposals and technologies, HHSC OIG determined that no single approach can entirely capture the scope and breadth of waste, fraud and abuse in the Medicaid system.

Based on identified needs, HHSC developed a Statement of Work it used to initiate a search via Texas’ existing collective purchasing vehicle managed by the State Department of Information Resources (DIR). HHSC OIG reviewed several vendors via a competitive, best value

procurement which provided the Statement of Work to vendors with offerings within specific standard industry classifications.

After a thorough review of responses, HHSC OIG determined the above needs as described in Section 2.2 could be satisfied by two vendors:

- Automated Fraud Detection- 21st Century Technologies using LYNXeon Graph Pattern Analysis Software
- Fraud Case Management, Reporting and Analysis- IBM Investigative Case Management Solutions

Proposals for each of these two vendors are attached to this APD, and a scope summary of these solutions are described below in Section 3.1 “Overall Scope.”

2.4 Cost Benefit Analysis (CBA) / Benefits of the Project

HHSC OIG has determined several key benefits to a joint implementation of the above solutions from 21st Century/LYNXeon and IBM.

- An aggressive, active approach to detecting fraud;
- The ability to identify and open additional cases through graph pattern analysis;
- Better information to close cases and support successful convictions;
- Prevention of dollars lost to fraud and abuse by recognizing the loss far sooner than current processes allow;
- Relief from the complaint based, “pay and chase” investigative process;
- The ability to report on performance metrics for fraud cases; and
- Enhancing efficiency by identifying cases with high probabilities of fraud, waste or abuse prior to expending time and financial resources.

Section 3 - Description of Activities, Proposed Schedule, and Staffing

3.1 Overall Scope

The following represents a summary of scope of the two solutions represented in OIG’s Anti-fraud and Abuse initiative. Specific scope surrounding each of the solutions can be found in the attached proposals for 21st Century (21CT)/ LYNXeon and IBM respectively.

3.1.1 Automated Fraud Detection:

21CT/LYNXeon Graph Pattern Analysis

The central component of the analytic solution for HHSC is 21CT’s LYNXeon Automated Fraud Detection software, a high-performance, enterprise-class platform that provides powerful and customizable graph pattern fraud analytics, combined with flexible and intuitive visualization. LYNXeon offers the benefits below.

Automated Fraud Analytics and Workflows

LYNXeon provides a powerful system based on Graph Pattern Analysis and analytical components offered through the LYNXeon Analyst Studio. Unique analytic features for fraud detection include the Analytic Catalog, Fraud Cluster Analysis, Fraud Association Discovery, and Advanced Analytics using Pattern Query Language. These capabilities allow the fraud investigator to query the data in a way that reveals patterns and relationships between people, places, events, times, and things. They also allow queries based on groups, “nearness” and other clustered or networked behavior. These varied analytic techniques offer investigators choices in how to uncover connections in seemingly unrelated data.

The fraud investigator starts the investigation in the LYNXeon Analytic Catalog. The process begins with selecting one of many pre-identified LYNXeon fraud analytic approaches or by selecting an Analytic from results that the system has already run and return. As LYNXeon users find useful patterns of suspicious treatment, improper billing, outlier behavior or other remarkable situations, they can then develop their own approaches, or add further layers of queries to existing queries in order to identify other clues to suspicious activity. There is always the opportunity to share new queries with other analysts and schedule queries to run automatically. The Analytic Catalog provides an organization a means to collaborate and diffuse expertise between both expert and novice fraud investigators. The result is an organization with supporting technology that can leverage the human intellect of tens or hundreds of analysts, building upon experience and each query to develop thousands of automatic queries completed in seconds, as often and regularly as desired.

Cluster Analysis provides a groundbreaking, patented clustering technique that detects significant relationships without pre-existing knowledge of categories or classifications. In contrast to conventional statistics-based clustering techniques, LYNXeon’s Cluster Analysis inspects the *link-based* connectivity of data elements to reveal groups of items that appear related to one another, such as groups of providers or patients who may be colluding to defraud the agency. More simply, rather than relying upon statistics and algorithms to identify when things look aberrant (compared to established norms), Cluster Analysis mimics human thought by looking at the *relationships* between and among groups of elements. Knowing that ten providers are the highest billers of a particular suspect code is interesting, but easy. What is particularly helpful is to know what led to them being the highest billers: who do they know? How and when and with whom do they bill? What is connected to their billing? Based on these links, what other connections can we expect? Cluster Analysis affords this type of intelligence.

Meanwhile, Association Discovery explores correlated HHSC data and discovers more complex chains of connections between data points such as people, places, times and things. So for example, consider a physician whose patients consistently use the same pharmacy to fill prescriptions. This type of activity could be indicative of fraud between the physician and the pharmacy yet is difficult to find with directed data queries. There are links in the data from the physician to the patients and the patients to the pharmacy, but no direct links to tie the physician to the pharmacy. Association Discovery can uncover these patterns of activity by linking together intermediary data elements and revealing those patients who use the same physician and get their prescriptions filled at the same pharmacy and location. Manual and human interpretation of these patterns of activity could take analysts months; Association Discovery reduces this time to seconds, even on massive data repositories.

Advanced Analytics allows for the extension of the LYNXeon platform to serve domain-specific needs. Thus, common and repetitive tasks or workflows useful to the HHSC analysts can be

simplified to one-step mouse-click actions in LYNXeon’s user interface, Analyst Studio. This not only expedites the process for investigators (thus saving time for more important activities) but it also serves as a reminder to investigators to do basic investigative work on a regular basis (and makes it easy to do so).

LYNXeon Analyst Studio is a workstation tool for accessing all of the components provided by the LYNXeon Enterprise Server platform. Using Link Explorer—a flexible and intuitive canvas—analysts can visually interact with data in ways never before possible. HHSC analysts can discover and visualize relationships and links in the data, query and ask questions of the data without having to understand complex languages or algorithms, observe the progression of events over time, and overlay data on maps using the integrated GIS viewer. Aside from being one of the most powerful tools on the market (and the only capable of graph pattern analysis) LYNXeon is also intuitively easy. One of LYNXeon’s strengths is its practical application: nearly any investigator or analyst can learn to use it easily.

3.1.2 Solution Integration

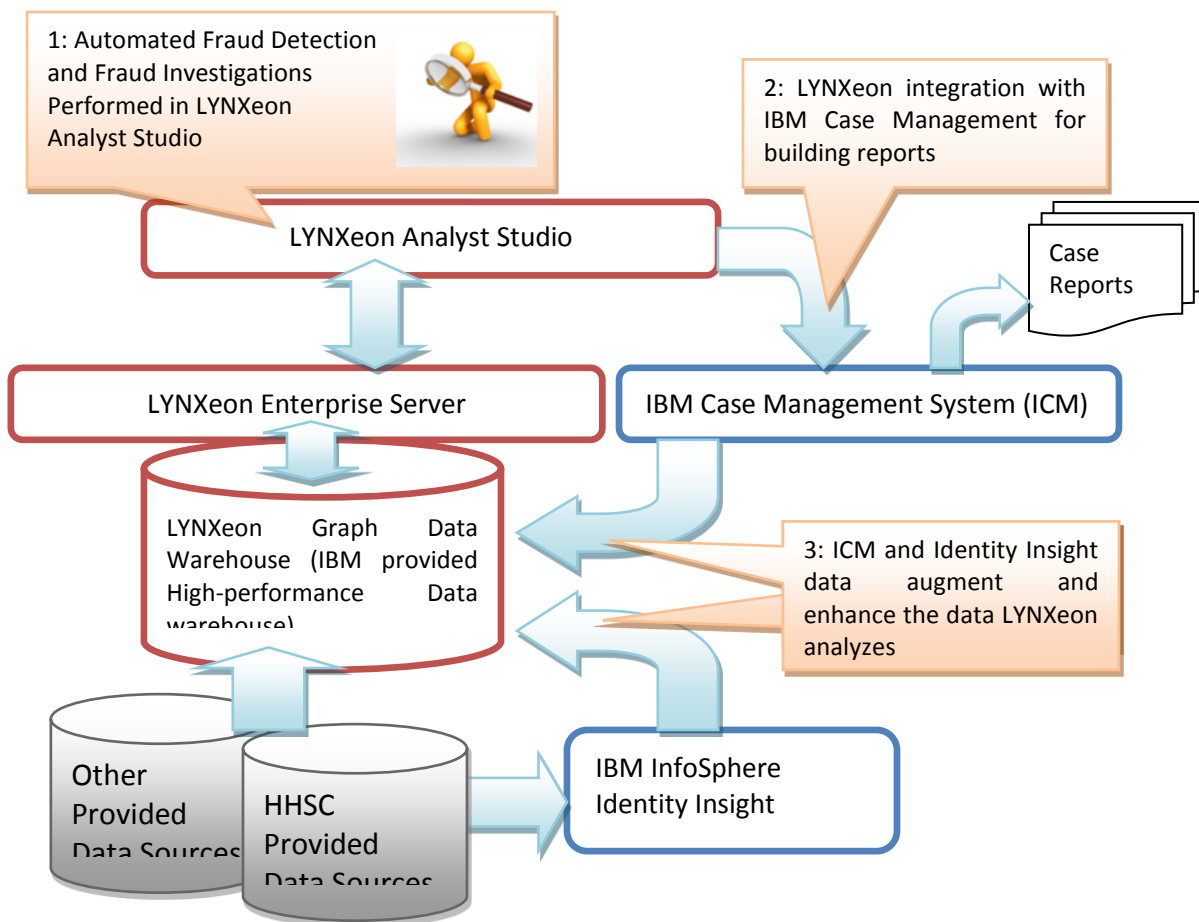


Figure 1: Proposed Architecture and Usage Diagram

In order to understand the OIG solution, it is important to recognize the OIG proposal draws on the strengths of two apparently divergent (and otherwise competing) technologies. The LYNXeon approach relies upon a mathematical graph of information upon which the tool and users can perform analysis to detect fraudulent behaviors. IBM will provide two critical systems: Identity Insights, which provides entity resolution (clarifying and cleaning data to eliminate errors attributable to corruptions or repetitions in the data itself), and IBM’s Case

Management System for case reporting. Both systems will also serve as data sources for LYNXeon analysis (see Figure 1).

In the example of a Google word search, the traditional approach yields a query like this: “identify all the Medicaid fraud experts in Texas,” where the LYNXeon approach yields a query like this: “identify all experts in the available data.” The first query would result in a list of names answering a specifically defined search. Depending on the data available, the second might result in a graph of every expert contained in the data, identifying the linkages between those who work in Medicaid cases and those who specialize in other areas, defining those who testify and those who do not, showing linkages between higher paid experts and their clients, permitting the user to see relationships between and among experts, clients, dates, nature of testimony, and so on.

The OIG proposal contemplates a broad spectrum approach, utilizing and integrating ordinarily competitive business products into a single, comprehensive analytic approach to interdicting waste, fraud and abuse in Medicaid expenditures. Once fully integrated and implemented, OIG’s proposal will draw on the strengths of divergent approaches and technologies, fusing them into a powerful, comprehensive method of organizing, storing, accessing and easily manipulating and utilizing enormous quantities of data. The result will be an aggressive approach to early identification and prevention of Medicaid overpayments. Nothing like this approach exists in federal or state Medicaid policing. The closest similarity to the capability described in this proposal, to analyze structured and unstructured data with both directed and undirected queries, can be found in major credit card companies and the National Security Agency.

In brief, OIG proposes to marry technologies – initially, by positioning LYNXeon to utilize IBM’s data warehousing capacity as OIG’s primary data storage solution. Requiring LYNXeon to take advantage of the IBM data storage technology ensures the two systems are linked from the outset of the implementation. Then, LYNXeon will integrate IBM’s Identity Insights and IBM’s Case Management System (CMS) products as source data, actually integrating and ingesting them into LYNXeon’s Automated Fraud Detection system.

IBM’s InfoSphere Identity Insights

This effort will involve pulling data from a variety of data sources, some provided by HHSC and some provided from other external sources. LYNXeon’s graph data warehouse is essentially a correlation and fusion of these data sources into a linked graph of this source data. This graph representation is necessary to conduct automated fraud detection using graph pattern analysis. However, as is often the case, the same real-world entity (a person, for example) can be represented as multiple aliases across several data sources (“Dr. X” may appear that way in Medicaid data sources, as “Mr. X” in academic or Secretary of State records, but as “John and Mary X” in county property records. A solution must exist to resolve and disambiguate data entities.

IBM InfoSphere Identity Insight is a real-time, scalable entity resolution and analysis platform. Its pioneering identity and relationship disambiguation technology combined with innovative, complex event processing will ensure the best data source for analysis in LYNXeon as shown below in “ICM and Identity Insight data augment and enhance the data LYNXeon analyzes” of Figure 1.

Advanced Case Management

An advanced case management system is integrated into the OIG proposal through IBM's Case Manager (ICM). This platform provides an environment where agencies and programs can customize solutions to support specific mission areas, uniting information, processes and people. The ICM solution affords OIG a comprehensive view of case information to achieve increased performance through performance metrics, time and expense tracking, case identification methods (that is, recognizing which cases fit queries such as "how many cases have potential exposure greater than \$5 million and were opened after January 2012?") and other access points to cases and case data that OIG determines will optimize outcomes. ICM allows OIG investigators and managers to extract and manage critical case information through integrated business rules, collaboration and analytics. These capabilities enhance decision making ability and lead to more successful case outcomes.

ICM is a highly flexible and adaptable solution that provides a foundation for capturing and replicating the best of the organization's practices. Through templates, the ability to auto-populate those forms with data available from LYNXeon-utilized databases and an extensible infrastructure for meeting specific program and departmental priorities, ICM provides a complete approach to case management: OIG will be able to manage – and most significantly, access – cases and the data they contain through a number of queries limited only by the needs of the agency. ICM and its case analysis elements are designed to be reused within parallel or future solutions, thereby further reducing risk, cutting costs and speeding the time-to-value for the software. Said another way, ICM can integrate with the same databases LYNXeon uses, auto-populate forms with routine data (*e.g.*, identification numbers, addresses, corporate ownership) and thereby save hours of investigator time. Later in the process, investigators can use ICM loaded templates to prepare case reports, load audio visual recordings and access case files from remote locations.

The IBM proposed solution includes migration of cases from OIG's existing case management system, IFM, in two stages. In this way, OIG will be able to maximize the value of ICM by 1) maintaining historical case management data, and 2) enhancing the value of that data by being able to access it readily, query it and use it in LYNXeon analytic approaches. OIG will integrate LYNXeon with IBM's case management system by both ingesting data from the system as well as feeding LYNXeon analytic results back into the system, creating a symbiotic relationship between the two technologies. This symbiosis will have the effect of creating additional valuable data points for LYNXeon to analyze (permitting investigators to see patterns and trends in OIG's own cases among case types, actors involved, geographic centers of activity and various other measurements) while simultaneously providing investigators the ability to use ICM to provide access to cases in a method that empowers OIG investigators to extract and manage critical case information through integrated business rules, collaboration and analytics. Further, ICM will offer OIG previously unavailable access to historical case information from the existing case management system. OIG will be able to leverage that historical case information immediately and enhance the value of that data by being able to access it readily, query it and use it in the LYNXeon analytic approach.

OIG assesses IBM's Case Manager as the most effective, customizable and practically useful case management application available, easily integrated with LYNXeon in a manner to add value to both technologies.

High-performance Data Warehousing System

IBM will provide a high-performance data warehousing solution to serve as the data storage medium for LYNXeon Enterprise Server. This data warehouse will hold LYNXeon’s graph representations of Medicaid claims data, various other database resources (such as Dun & Bradstreet, Texas Secretary of State data, commercially available databases, property records and other sources of information) and, in time, information originating from SNAP/WIC/TANF data as well as cyber network data. This data warehousing solution has the capacity to accommodate large scale data analysis (tens or hundreds of terabytes) and the expected user workload of even an OIG office enhanced with additional investigators and system users.

Assumptions

HHSC will provide access to the data sources used by both 21CT and IBM systems. OIG will provide the fraud investigators, physicians and nurse expertise.

3.2 Timelines

The integration will take place over a two-year period, as diagrammed in this timeline and detailed below.

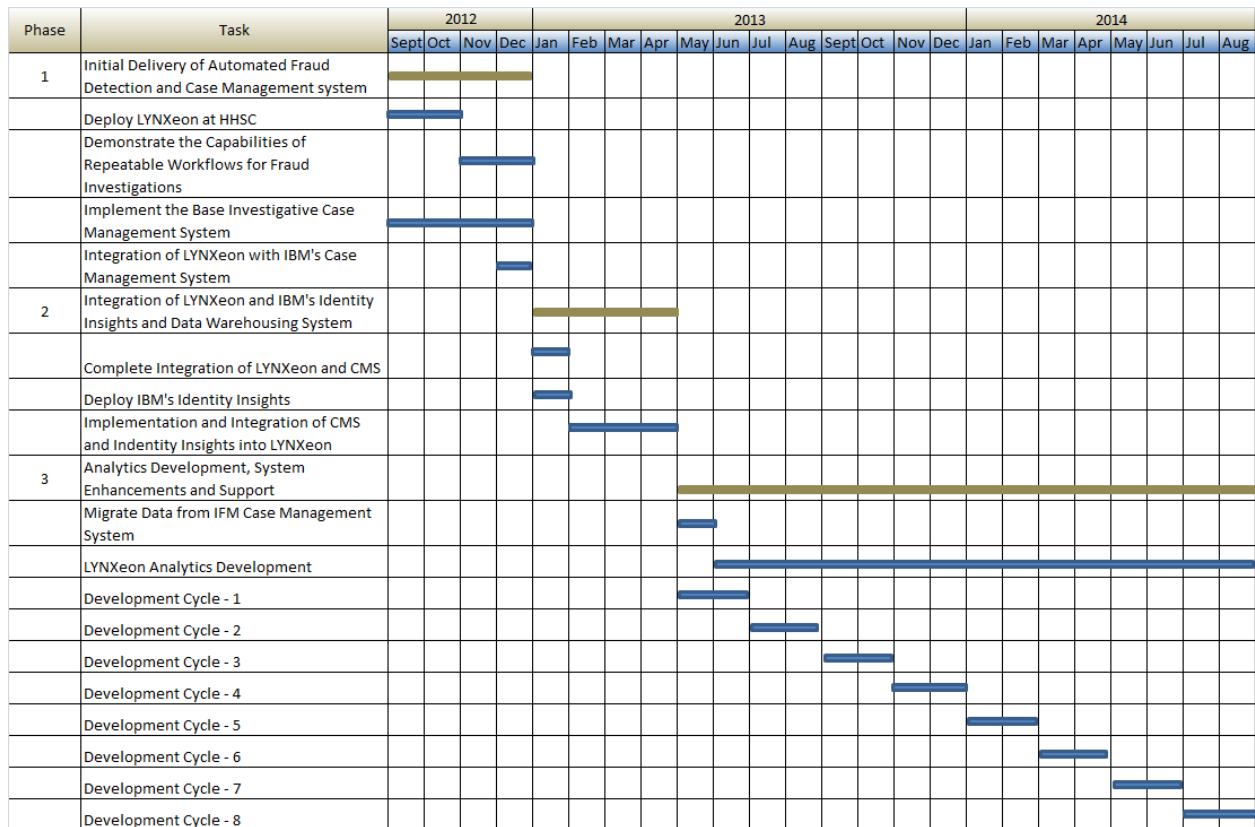


Figure 2: Timeline of Phases and Tasks

Description of Tasks

Phase 1: Initial Delivery of Automated Fraud Detection and Case Management System (Months 1-4)

21CT will conduct business analysis to gain an understanding of the processes and workflows around HHSC fraud investigations. This analysis will drive the design of LYNXeon graph data schemas and specific fraud analytics for HHSC. Upon completion of the design phase, 21CT will deploy LYNXeon at HHSC and will ingest Medicaid data into LYNXeon server. 21CT expects to reach this milestone within the first two months after contract start.

21CT will work with HHSC analysts in months 3-4 for build an initial set of LYNXeon Analytics and workflows. This will involve training of HHSC analysts and working with those analysts on an ongoing basis throughout the effort. At the end of this Phase 1 period (month 4), 21CT will deliver repeatable workflows for fraud investigations and HHSC analysts will be able to demonstrate these capabilities.

Parallel to the 21CT efforts, IBM will implement the base investigative case management system. This phase will permit the capture and storage of both scanned paper and electronic case documents (*e.g.*, Word, PDF, PPT) for creation and population of cases. OIG Program Integrity team members with appropriate access controls will be able to edit and update new versions of these documents, annotate, comment and modify cases and case documents. IBM will migrate pending cases from the current case management system to the new case management system and will enable data reporting for inactive cases pulled from the IFM system. OIG will be able to create summary reports, statistics an analysis across both current and historic case data. After observing OIG processes during the initial four months, IBM will identify initial OIG requirements and will implement IBM Case Manager to provide basic case management functionality, including roles, content types, forms, workflows and case storage in the IBM Case Manager repository. This system will go live in month four.

Throughout the Phase 1 of this effort 21CT will conduct requirements gathering for the integration of LYNXeon with IBM's case management systems and document an integration plan. At the end of month four, 21CT and IBM will be able to demonstrate the use LYNXeon and ICM components necessary to meet Phase 1 deliverables.

Estimated completion: 4 Months after Contract

Phase 2: Integration of LYNXeon and IBM's Identity Insights and data warehousing system (Months 5-8)

21CT and IBM will complete the integration of LYNXeon and ICM. Specifically, this will entail feeding ICM reports back into LYNXeon so that they can serve as data sources for Automated Fraud Detection and Investigations (see Figure 1: Proposed Architecture and Usage Diagram). LYNXeon will identify 3 additional data sets as identified and agreed upon by OIG and 21CT during the Phase I effort (*e.g.*, Dun and Bradstreet data, Texas Secretary of State data, commercially available databases, property records and other sources of information). IBM's Identity Insights will be deployed to perform entity resolution on this data and feed the resolved data directly to LYNXeon's graph data warehouse (see Step 3 in Figure 1). Identity Insights will be delivered at the end of month 5.

By the end of this Phase (month 8), LYNXeon will fully utilize the IBM provided High-performance Data Warehouse system. Integration efforts of ICM and Identity Insights data into the LYNXeon graph data warehouse will also be complete.

Estimated completion: 8 Months after Contract

Phase 3 Analytics Development, System Enhancements, Support and Ongoing Training (Months 9-24)

If not already finalized, IBM will complete migration of data related to inactive cases from the legacy IFM case management system, enabling HHSC to decommission the system. This migration will be complete no later than month nine.

LYNXeon Analytics development will continue and build upon the Analytics work of the first three phases. This Analytic development work will focus on further automation of the detection of fraud activities and will be an ongoing task through remainder of the effort.

At the beginning of this Phase, 21CT and OIG will begin a process of development cycles in which both parties will explore the capabilities of the complete implemented solution, document capability gaps and needed improvements in an “Enhancement Plan,” and then implement new capabilities. An example enhancement development cycle would be:

- Identify and Document Desired Capabilities
- Create/Modify Enhancement Plan
- Design
- Implement Enhancement Plan
- Test
- Demonstrate and Train on New Capabilities

At the end of the development cycle, all parties will repeat the process again, identifying new capabilities, workflows and customizations, based on the latest iteration of the entire system. Each of these development cycles is expected to last two months with a tight customer feedback loop at the end of the cycle to drive the next cycle of development.

Estimated Completion: 24 Months after Contract

3.2.3 Total Timeline for Completion – All Parts

The total timeline for completion of this project, all parts is two (2) years from the approval date of this Advance Planning Document (APD-U).

3.3 Staffing

Both proposals are turn-key solutions and include all staffing components as part of the overall purchase price. HHSC OIG anticipates it can accomplish implementation of both of these projects by reallocating existing State staff.

Section 4 - Budget

SECTION 4.1 REMOVED – PROPRIETARY PRICING INFORMATION

4.2 Federal Financial Participation

<i>Federal Funding Participation Allocation: APDU Related - MMIS</i>			
Allocation Category	State Portion	Federal Portion	Total Federal & State
Non-MMIS 50/50 FFP	\$ -	\$ -	\$ -
MMIS Related 50/50 FFP	\$	\$	\$
MMIS Related 75/25 FFP	\$ 408,006.10	\$ 3,672,054.90	\$ 4,080,061.00
MMIS Related 90/10 FFP	\$ 1,583,751.20	\$ 14,253,760.80	\$ 15,837,512.00
Total Amendment/COR Cost	\$ 1,991,757.30	\$ 17,925,815.70	\$ 19,917,573.00

Section 5 – Assurances

5.1 CFR Assurances

The following assurances are provided in accordance with the requirements of 45 CFR 95.613, and 95.615, and 42 CFR 433.112(b) (5)-(9).

The Texas Health and Human Services Commission agrees that:

- The State shall own any software, procedures, or publications that are designed, developed, installed, or improved with 90 percent FFP. The State shall retain the right to sign, extend, and cancel any licenses for software used in operation of the enhanced Medicaid system.
- HHSC has a royalty-free, non-exclusive, and irrevocable license to reproduce, publish, or otherwise use and authorize others to use software, modifications to software, and documentation that is designed, developed, installed, or improved with 90 percent FFP.
- The costs of the system will be determined in accordance with the principles of fair and open competition in accordance with 45 CFR 95.613.
- All information in the system will be safeguarded in accordance with 42 CFR 431, Subpart F, or with such standards as established by the Secretary of Health and Human Services under the provisions of the Health Insurance Portability and Accountability Act of 1996.

5.2 Compliance with CMS Seven (7) Conditions and Standards

The following Seven Conditions and Standards as prescribed in Medicaid IT Supplement (MITS-11-01-v1.0) are discussed below:

5.2.1 Modularity Standard

- SDLC and Development. The 21CT/LYNXeon and IBM Case Manager are both complete Commercial-off-the-Shelf (COTS) products. The products purchased are turn-key solutions built on open platforms such as Linux, and SQL. The State is not conducting any additional, in-house software development for this solution.
- Interfaces: The joint 21CT/IBM solution is completely based around modular, industry standard API's which are described in depth within each of the proposals.
- Business Rules. The joint 21CT/IBM solution employs a number of open, accessible, and human-readable business rules to automate the discovery and management of unreported fraud cases. These business rules can be exported to any HHS designated national repository.

5.2.2 MITA Condition

In August 2012, Texas Medicaid expects to complete its second MITA State Self Assessment (SS-A) based on recently released version 3 of the CMS MITA Framework. During the assessment, the State set specific goals for improvement based on the scale set forth in the MITA Maturity Model (MMM). To achieve the goals, the State contracted with Cognosante (formerly FOX systems) to develop three deliverables as part of the MITA SS-A: 1) An “As-is” analysis, 2) A “To-be” roadmap, and 3) A “Gap” analysis which determines the gaps between the “As-is” state and the “To-be” level of business capability, based on the MMM. The final submission of Texas MITA 3.0 SS-A is expected in October 2012.

For this APD, we have listed the relevant MITA business processes that will be impacted by the benefits of the Managed Care Expansion project in consideration of these recommendations:

MITA 3.0 BUSINESS PROCESSES	PROBLEM ADDRESSED	ASSISTS IN IMPROVING MITA 3.0 MATURITY LEVELS
PL05 – Manage Performance Measures	OIG currently has no way to develop metrics and measure performance on the identification of fraud and abuse in the Texas Medicaid system, due to a manual process that requires extensive involvement from investigators. Performance reporting requires investigators to manually open every case to retrieve data.	The 21CT/LYNXeon solution raises the MMM rating for this process from Level 1 to Level 2 for automation, data accuracy, effectiveness, efficiency, and Level 3 for utility to stakeholders
PE01 – Identify Utilization Anomalies	As stated previously in this document, from an identification perspective referrals are based on provider complaints, and there are issues with respect to this business process. OIG believes that fraud complaints/referrals represent the “tip of the iceberg”	The 21CT/LYNXeon solution raises the MMM rating for this process from Level 1 to Level 2 for automation, data accuracy, effectiveness, efficiency, and Level 3 for utility to stakeholders

	<p>when determining the extent of fraud and abuse. The OIG currently has no automated process to identify patterns of abuse as they happen.</p>	
<p>PE02 – Establish Compliance Incident</p>	<p>Medicaid Provider Integrity’s (MPI) cases are predominately identified and driven by complaints. These complaints are related to providers enrolled in the Texas Medicaid and/or CHIP program.</p> <p>Self-generated referrals can be initiated by any investigator, Manager or nurse in MPI who comes into information that leads us to believe a provider may be committing fraud, waste or abuse in the Texas Medicaid Program, however, the current workload is too high to review these cases and supporting information is almost never readily available.</p>	<p>The 21CT/LYNXeon solution raises the MMM rating for this process from Level 1 to Level 2 for automation, data accuracy, effectiveness, efficiency, and Level 3 for utility to stakeholders.</p>
<p>PE03 – Manage Compliance Information Incident</p>	<p>Compliance incidents are generated using a completely manual process that is exclusively reliant on human intervention. Regardless of the source of the complaint the Medicaid Program Integrity Intake Unit and/or MPI Field staff performs the following actions:</p> <p>Review the information received. Research is then performed to verify that the complaint is in regard to an enrolled Medicaid provider. Manual verification is required and is not automatically cross referenced to a provider’s information. Once verification is performed, a manual request must be submitted for a case to be opened on the legacy case management system, which then generates a case number.</p> <p>The process is extremely time</p>	<p>The 21CT/LYNXeon solution raises the MMM rating for this process from Level 1 to Level 2 for automation, data accuracy, effectiveness, efficiency, and Level 3 for utility to stakeholders.</p>

	consuming, as it is a completely manual process reliant on human intervention in the management and monitoring of fraud cases.	
PE04 – Determine Adverse Action Incident	As stated previously throughout this APD, incident determination is a completely reactive process, utilizing a complaint-based, “pay and chase” process. The determination of an adverse action incident is a completely manual process reliant on human intervention. The length of time for an investigation has been years and an efficient tracking, for referrals and outcomes, system is required.	The 21CT/LYNXeon solution raises the MMM rating for this process from Level 1 to Level 2 for automation, data accuracy, effectiveness, efficiency, and Level 3 for utility to stakeholders.

5.2.3 Industry Standard Condition

Both the 21CT/LYNXeon solution and the IBM Case Management solution are end-user data repositories that will natively accept X12 claims and encounters information.

5.2.4 Leverage Condition

In accordance with receipt of 90/10 funding, HHSC agrees to share project artifacts with other states/federal entities to the extent available by law.

5.2.5 Business Results Condition

The combined 21CT/LYNXeon and IBM Case Management solution generates significant business results through the following:

- Automation: The combined 21CT/IBM solution exponentially increases the level of automation regarding fraud discovery in the OIG’s office through Graph Pattern Analysis to identify trends and fraud patterns that remain unreported. This information is fed into the IBM Case Management solution which develops cases and automates workflow for resolution of these cases.

- **Performance Standards:** The IBM Case Management solution will enable automated tracking, and reporting of case statistics assist in the development of performance metrics that will be used to measure case performance and fraud recovery activities. Reporting against these metrics will be available to key stakeholders including Texas HHS executive leadership, the Texas Legislature, and the Centers for Medicare and Medicaid Services (CMS).
- **Customer Service:** The combined 21CT/IBM solution best serves our most important customer – taxpayers. The reduction of fraud and abuse and the subsequent recoveries will lower the cost of Medicaid for taxpayers, provide opportunities for expanded service at legislative discretion and enhance access to care by increasing the attractiveness of the program through enhanced program integrity.

5.2.6 Reporting Condition

The joint 21CT/IBM solution as described completely embodies the intent of the reporting condition. The 21CT/IBM solution is a scalable solution that uses standard SQL databases as the foundation of query reporting. Reporting data will be available electronically (see attached proposals for greater detail)

5.2.7 Interoperability Condition

Since the 21CT/IBM solutions are leading COTS products in the healthcare marketplace, and use open source technology, as well as open interfaces, we expect interoperability with any national exchange to be seamless.